

**K21045/01**

Definitive

2020-03-02

# Fire Protection Systems

assessment scheme for the testing, inspection and certification of fire protection systems



**kiwa** 

**Trust  
Quality  
Progress**

# Preface

This international scheme for Testing, Inspection & Certification (TIC) has been accepted by the Board of Experts Fire Safety (BoE FS), in which all relevant parties in the field of Fire Safety are represented. The Board of Experts also supervises the activities and where necessary requires this TIC - scheme to be revised. All references to Board of Experts in this evaluation scheme pertain to the above mentioned Board of Experts. This scheme shall be used in conjunction with the Kiwa Regulations for Certification.

The objectives of this scheme, namely to enhance safety and the prevention of pollution through the uniform application of the relevant international standards relating to fire protection systems to be placed on risk locations or risk full logistics, and to ensure the proper application of such systems within the EU. In the first instance, the affixing of the certification mark to the systems by the certified manufacturer or, where relevant, the certified supplier should be the guarantee pursuant to their obligations under this scheme that the systems are compliant and may be placed on the market. Thereafter, certain provisions are necessary for the safe continuation and applicability of the certification mark after it has been affixed and for the effective discharge of the task of national market surveillance authorities. The certified manufacturer or, where relevant, the certified supplier or the system integrator, should be obliged to provide the competent authorities with full and truthful information in relation to the system it has certification marked to ensure that fire protection systems remains safe. The certified manufacturer should be obliged to cooperate with market surveillance authorities, including as regard standards against which it has manufactured and certified systems, and should also exercise due diligence in relation to the fire protection systems it places on the market. In this regard, a manufacturer located outside the EU should appoint an authorized representative in order to ensure cooperation with competent national authorities. Compliance with international testing standards could best be demonstrated by means of conformity assessment procedures such as those laid down in this scheme.

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The use of this evaluation guideline by third parties, for any purpose whatsoever, is only allowed after a written agreement is made with Kiwa to this end.

### **Validation**

This evaluation guideline has been validated by the Director FSS Certification and Inspection of Kiwa on 02-03-2020

# Contents

	<b>Preface</b>	<b>1</b>
	<b>Contents</b>	<b>2</b>
<b>1</b>	<b>Introduction</b>	<b>5</b>
1.1	General	5
1.2	Field of application / scope	5
1.3	Acceptance of test reports provided by the supplier	6
1.4	Quality declaration by Kiwa	6
1.5	Assessment method type 6	6
1.5.1	Assessment method type 1a	6
<b>2</b>	<b>Terms and definitions</b>	<b>8</b>
2.1	Definitions	8
<b>3</b>	<b>Procedure for granting a product / process / service certificate to the supplier</b>	<b>10</b>
3.1	Initial investigation	10
3.2	Granting the product / process / service certificate	10
3.3	Investigation into the process and/or performance requirements	10
3.4	Production process assessment	10
3.5	Contract assessment	10
<b>4</b>	<b>Requirements process for the supplier</b>	<b>11</b>
4.1	General	11
4.2	Regulatory requirements	11
4.3	Process requirements Services for fire safety systems	11
4.4	Scope A – Fixed firefighting systems - Watermist Systems	11
4.5	Scope B – Fixed firefighting systems - Automatic Sprinkler Systems	11
4.6	Scope C – Fixed firefighting systems - Gas Extinguishing Systems	11
4.7	Scope D – Fixed firefighting systems - Oxygen Reduction Systems	12
4.8	Scope E – Fixed firefighting systems - Aerosol Systems	12
4.9	Scope F – Fixed firefighting systems - Powder Systems	12
4.10	Scope G – Fixed firefighting systems - Foam Systems	13
4.11	Scope H – Fixed firefighting systems - Water Spray Fixed Systems	13
<b>5</b>	<b>Testing the performance of the systems by Kiwa</b>	<b>14</b>
5.1	General	14

5.2	Scope A – Fixed firefighting systems - Watermist Systems	14
5.3	Scope B – Fixed firefighting systems - Automatic Sprinkler Systems	14
5.4	Scope C – Fixed firefighting systems - Gas Extinguishing Systems	14
5.5	Scope D – Fixed firefighting systems - Oxygen Reduction Systems	15
5.6	Scope E – Fixed firefighting systems - Aerosol Systems	15
5.7	Scope F – Fixed firefighting systems - Powder Systems	15
5.8	Scope G – Fixed firefighting systems - Foam Systems	15
5.9	Scope H – Fixed firefighting systems - Water Spray Fixed Systems	16
<b>6</b>	<b>Factory Production Control Fire Protection Components by Kiwa</b>	<b>17</b>
6.1	General	17
6.2	Assessment (audit / inspection) FPC	17
<b>7</b>	<b>Inspection of fire protection systems by Kiwa</b>	<b>19</b>
7.1	General	19
7.2	Steps in the process of the initial inspection for the qualification of the FPS	19
7.3	Steps in the process of the surveillance inspection for the re-qualification of the FPS	20
<b>8</b>	<b>Marking</b>	<b>21</b>
8.1	General	21
8.2	Certification mark	21
8.2.1	Product / component marking by the manufacturer	21
8.2.2	Installation marking by the supplier	21
8.2.3	Maintenance marking by the supplier	21
8.3	System Application Inspection Certificate by Kiwa	21
<b>9</b>	<b>Requirements in respect of the quality system of the supplier / manufacturer</b>	<b>22</b>
9.1	Manager of the quality system of the fire repression system / product	22
9.2	Internal quality control / quality plan	22
9.3	Control of test and measuring equipment	22
9.4	Procedures and working instructions	22
9.5	Requirements of staff for fire protection systems	23
9.5.1	Requirements exams / diplomas fire protection systems	23
9.6	Planning audit and sample inspections fire protection systems	23
<b>10</b>	<b>Summary of tests and inspections by Kiwa</b>	<b>24</b>
10.1	Test, inspection and audit matrix	24
10.2	Inspection of the quality system of the supplier	25
10.2.1	Auditing the quality system of the supplier	25
10.2.2	Inspecting the output of the process of the supplier	25
<b>11</b>	<b>Agreements on the implementation of certification by Kiwa</b>	<b>27</b>

11.1	General	27
11.2	Certification staff	27
11.2.1	Qualification requirements	27
11.2.2	Qualification	28
11.3	Report initial investigation	29
11.4	Decision for granting the certificate	29
11.5	Layout of quality declaration	29
11.6	Nature of third party audits	29
11.7	Non conformities	29
11.8	Report to the Board of Experts	29
11.9	Interpretation of requirements	30
11.10	Specific rules set by the Board of Experts	30
<b>12</b>	<b>Titles of standards</b>	<b>31</b>
12.1	Public law rules	31
12.2	Standards / normative documents	31
<b>I</b>	<b>Annex - Model certificate (example)</b>	<b>33</b>
<b>II</b>	<b>Annex - Model IQC-scheme (example)</b>	<b>34</b>
<b>III</b>	<b>Annex - Interpretation of requirements</b>	<b>35</b>
<b>IV</b>	<b>Annex - structure scheme</b>	<b>36</b>
<b>V</b>	<b>Annex - structure documents scheme</b>	<b>37</b>

# 1 Introduction

## 1.1 General

This international Testing, Inspection and Certification scheme includes all relevant requirements which are employed by Kiwa when dealing with applications for the issue and maintenance of a certificate for products, processes and services used for fire protection systems.

The main setup of this scheme is based on the development of design standard within European Standardization Organizations CEN and the National Fire Protection Agency in the USA.

Within these standards, other standards are mentioned. The first level of standards is a minimal requirement. If at a second level a standard(s) is applicable shall this be detailed in the audit / inspection matrix per design standard.

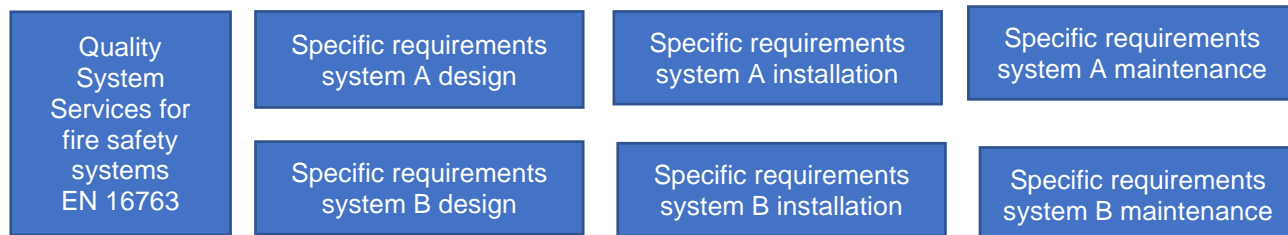
If the basic design directs to other design standards or specific certification programs, can these also be used if they fit the framework of the main setup.

For the performance of its certification work, Kiwa is bound to the requirements as included in EN-ISO/IEC 17065 “Conformity assessment - Requirements for bodies certifying products, processes and services”.

This scheme is drafted according EN-ISO/IEC 17067 “Conformity assessment - Fundamentals of product certification and guidelines for product certification schemes”. This scheme is a type 6 according to this standard.

This scheme shall be used in conjunction with the Kiwa Regulations for Certification and has a module structure for fire protection systems based on international standards.

*Note; Systems are for example “A” watermist system and system “B” sprinkler system.*



## 1.2 Field of application / scope

The fire protection systems are intended to be used in buildings / storage locations with the intend of fire repression or -control. The following specific scopes are possible:

- A – Watermist systems;
- B – Automatic Sprinkler Systems;
- C – Gas Extinguishing Systems;
- D – Oxygen reduction systems;
- E – Aerosol systems;
- F – Powder systems;
- G – Foam systems;
- H – Water Spray Fixed Systems

### 1.3 Acceptance of test reports provided by the supplier

If the supplier provides reports from test institutions or laboratories to prove that the products meet the requirements of this evaluation guideline, the supplier shall prove that these reports have been drawn up by an institution that complies with the applicable accreditation standards, namely:

- EN-ISO/IEC 17020 for inspection bodies;
- EN-ISO/IEC 17021-1 for certification bodies certifying systems;
- EN-ISO/IEC 17024 for certification bodies certifying persons;
- EN-ISO/IEC 17025 for laboratories;
- EN-ISO/IEC 17065 for certification bodies certifying products.

#### **Remark:**

This requirement is considered to be fulfilled when a certificate of accreditation can be shown, issued either by the Board of Accreditation (RvA) or by one of the institutions with which an agreement of mutual acceptance has been concluded by the RvA. The accreditation shall refer to the examinations as required in this evaluation guideline. When no certificate of accreditation can be shown, Kiwa shall verify whether the accreditation standard is fulfilled.

### 1.4 Quality declaration by Kiwa

The quality declaration to be issued by Kiwa is described as a:

- **Product** certificate for the manufacturing of the components in this fire repression systems provided by Kiwa;
- **Process** certificate for the delivery of installations of these fire repression systems provided by the supplier;
- **Services** certificate for the delivery of maintenance of the fire repression systems provided by the supplier;
- **System Application Inspection Certificate** for the system onsite fulfilling of the requirements in conjunction with required conditions provided by Kiwa.

A model of these certificates to be issued on the basis of this scheme has been included for information as an annex.

The right to use the Kiwa marking by the certified supplier organisations based on these certification activities is detailed in chapter 8 of this scheme.

### 1.5 Assessment method type 6

The normal assessment method per installation of this certification scheme is according EN-ISO/IEC 17067 "Conformity assessment - Fundamentals of product certification and guidelines for product certification schemes" type 6.

#### 1.5.1 Assessment method type 1a

If required a type 1a assessment according EN-ISO/IEC 17067 shall be performed. These inspections shall be performed according EN-ISO/IEC 17020 "Conformity assessment - General criteria for the operation of various types of bodies performing inspection".

In this assessment method shall the fire protection system meet the requirements and conditions of the design standard(s) of the fire protection system and the conditions required in the basic design of the system in conjunction with the required conditions for the construction of the building compartment(s) and the organisation applying the fire protection system.

This method shall create a complete overview of the usage of the fire protection system in its application and if successful shall result in a **System Application Inspection Certificate** (SAIC).  
In this method, the information is used generated by the supplier of the systems and co-suppliers of the conditions.  
This process is detailed in chapter 7 of this scheme.



## 2 Terms and definitions

### 2.1 Definitions

In this scheme, the following terms and definitions apply:

- **Board of Experts:** the Board of Experts Fire Safety (FS).
- **Certification mark:** a protected trademark of which the authorization of the use is granted by Kiwa, to the supplier whose products / process / services can be considered to comply on delivery with the applicable requirements.
- **Certification Scheme:** the agreements made within the Board of Experts on the subject of certification within this international TIC -scheme.
- **CIO:** Construction, Installation and Organisation.
- **Conditions:** for the function of a fire protection system, certain conditions are needed. These conditions can be for example a fire detection system of a closed compartment with or without a certain fire resistance. The conditions about the construction, installation and organisation (CIO) related to the fire protection system and specified in the design standard are applicable in chapter 7 of this scheme.
- **Inspection tests:** tests carried out after the certificate have been granted in order to ascertain whether the certified products / processes and services continue to meet the requirements recorded in this scheme in conjunction with the factory production controls.
- **IQC scheme (IQCS):** a description of the quality controls carried out by the supplier as part of his quality system also named internal quality plan per scope of fire repression system.
- **Initial investigation:** tests in order to ascertain that all the requirements recorded in this scheme guideline are met.
- **Marking:** a marking affixed by the supplier on its products, processes or services based on the requirements in this scheme.
- **Specific Certification Program (SCP):** a specific program detailing the requirements of a specific product and / or system within the scope of the TIC – scheme. The need for this specific certification program (SCP) shall be determined by the market if the standards are not covering a specific application. The SCP shall use as much of the existing requirements of the standards in this scheme.
- **System Application Inspection Certificate (SAIC):** A document in which Kiwa declares that a fire protection system may, when applicable, be deemed to comply with the system specification recorded in the product and process / or service certificate in conjunction with the conditions needed to fulfil the functions of the fire protection system. The conditions about the construction, installation and organisation (CIO) related to the fire protection system and specified in the design standard are applicable in chapter 7 of this scheme.

- **Private Label Certificate:** A certificate that only pertains to products that are also included in the certificate of a supplier that has been certified by Kiwa, the only difference being that the products and product information of the private label holder bear a brand name that belongs to the private label holder.
- **Product certificate:** a document in which Kiwa declares that a product may, on delivery, be deemed to comply with the product specification recorded in the product certificate.
- **Product requirements:** requirements made specific by means of measures or figures, focussing on (identifiable) characteristics of products and containing a limiting value to be achieved, which can be calculated or measured in an unequivocal manner.
- **Supplier:** the party that is responsible for ensuring that the products meet and continue to meet the requirements on which the certification is based.

# 3 Procedure for granting a product / process / service certificate to the supplier

## 3.1 Initial investigation

After the application review, the initial investigation shall be started.

The initial investigation to be performed is based on the (product, process and system) requirements as contained in this certification scheme, including the test methods, and comprises the following:

- type testing to determine whether the products comply with the product and/or functional requirements;
- production process assessment (if applicable);
- design process assessment;
- installation process assessment;
- maintenance process assessment;
- assessment of the quality system and the IQC-scheme;
- assessment of the presence and functioning of the remaining procedures.

## 3.2 Granting the product / process / service certificate

After finishing the initial investigation, the results are presented to the Decision maker deciding on granting the certificate. This person evaluates the results and decides whether the certificate can be granted or if additional data and/or tests are necessary.

## 3.3 Investigation into the process and/or performance requirements

Kiwa will investigate the products / systems to be certified against the certification requirements as stated in the certification requirements.

The necessary samples will be drawn by or on behalf of Kiwa.

## 3.4 Production process assessment

When assessing the production process, it is investigated whether the manufacturer is capable of continuously producing products that meet the certification requirements.

The evaluation (Factory Production Control) of the production process takes place during the ongoing work of the manufacturer.

The assessment also includes at least:

- The quality of raw materials, half-finished products and final completed products;
- Internal transport and storage.

## 3.5 Contract assessment

If the supplier is not the manufacturer of the products to be certified, Kiwa will assess the agreement between the supplier and the producer.

This written agreement, which is available for Kiwa, includes at least:

Accreditation bodies, scheme managers and Kiwa will be given the opportunity to observe the certification activities carried out by Kiwa or on behalf of Kiwa at the manufacturer premises.

# 4 Requirements process for the supplier

## 4.1 General

This chapter contains the requirements that the delivery process shall comply.

## 4.2 Regulatory requirements

Not applicable.

## 4.3 Process requirements Services for fire safety systems

The requirements of the delivery process are specified in EN16763 “Services for fire safety systems and security systems”.

## 4.4 Scope A – Fixed firefighting systems - Watermist Systems

The design requirements of these systems are specified in the standard:

- NFPA 750; Standard on Water Mist Fire Protection Systems;
- CEN/TS 14972; Fixed firefighting systems - Watermist systems - Design and installation.

The installation requirements of these systems are specified in the standard:

- NFPA 750; Standard on Water Mist Fire Protection Systems;
- CEN/TS 14972; Fixed firefighting systems - Watermist systems - Design and installation.

The maintenance requirements of these systems are specified in the standard:

NFPA 25; Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems.

## 4.5 Scope B – Fixed firefighting systems - Automatic Sprinkler Systems

The design requirements of these systems are specified in the standard

- NFPA 13; Standard for installation Sprinkler Systems;
- EN 12845; Fixed firefighting systems - Automatic sprinkler systems - Design, installation and maintenance.

The installation requirements of these are specified in the standard:

- NFPA 13; Standard for installation Sprinkler Systems;
- EN 12845; Fixed firefighting systems - Automatic sprinkler systems - Design, installation and maintenance.

The maintenance requirements of these systems are specified in the standard:

- NFPA 25; Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems;
- EN 12845; Fixed firefighting systems - Automatic sprinkler systems - Design, installation and maintenance.

## 4.6 Scope C – Fixed firefighting systems - Gas Extinguishing Systems

The design requirements of these systems are specified in the standard:

EN 15004-1; Fixed firefighting systems - Gas extinguishing systems - Part 1: Design, installation and maintenance (ISO 14520-1:2006, modified);

The installation requirements of these systems are specified in the standard:  
EN 15004-1; Fixed firefighting systems - Gas extinguishing systems - Part 1: Design, installation and maintenance (ISO 14520-1:2006, modified);

The maintenance requirements of these systems are specified in the standard:  
EN 15004-1; Fixed firefighting systems - Gas extinguishing systems - Part 1: Design, installation and maintenance (ISO 14520-1:2006, modified).

#### **4.7 Scope D – Fixed firefighting systems - Oxygen Reduction Systems**

The design requirements of these systems are specified in the standard:  
EN 16750; Fixed firefighting systems - Oxygen reduction systems - Design, installation, planning and maintenance;

The installation requirements of these systems are specified in the standard:  
EN 16750; Fixed firefighting systems - Oxygen reduction systems - Design, installation, planning and maintenance;

The maintenance requirements of these systems are specified in the standard:  
EN 16750; Fixed firefighting systems - Oxygen reduction systems - Design, installation, planning and maintenance.

#### **4.8 Scope E – Fixed firefighting systems - Aerosol Systems**

The design requirements of these systems are specified in the standard  
ISO 15779; Condensed aerosol fire extinguishing systems - Requirements and test methods for components and system design, installation and maintenance - General requirements;  
EN15276-2; Fixed firefighting systems - Condensed aerosol extinguishing systems - Part 2: Design, installation and maintenance;  
NFPA 2010; Standard for Fixed Aerosol Fire-Extinguishing Systems.

The installation requirements of these systems are specified in the standard:  
ISO 15779; Condensed aerosol fire extinguishing systems - Requirements and test methods for components and system design, installation and maintenance - General requirements;  
EN15276-2; Fixed firefighting systems - Condensed aerosol extinguishing systems - Part 2: Design, installation and maintenance;  
NFPA 2010; Standard for Fixed Aerosol Fire-Extinguishing Systems.

The maintenance requirements of these systems are specified in the standard:  
ISO 15779; Condensed aerosol fire extinguishing systems - Requirements and test methods for components and system design, installation and maintenance - General requirements;  
EN15276-2; Fixed firefighting systems - Condensed aerosol extinguishing systems - Part 2: Design, installation and maintenance;  
NFPA 2010; Standard for Fixed Aerosol Fire-Extinguishing Systems.

Additional listing is possible. The additional tests will be listed in the attachment of the product declaration or attest. Possible standards are:

- MSC.1/Circ.1270 based on IMO-regulations;

#### **4.9 Scope F – Fixed firefighting systems - Powder Systems**

The design requirements of these systems are specified in the standard  
EN 12416-2; Fixed firefighting systems - Powder systems - Part 2: Design, construction and maintenance;

The installation requirements of these systems are specified in the standard:  
EN 12416-2; Fixed firefighting systems - Powder systems - Part 2: Design, construction and maintenance;

The maintenance requirements of these systems are specified in the standard:  
EN 12416-2; Fixed firefighting systems - Powder systems - Part 2: Design, construction and maintenance.

#### **4.10 Scope G – Fixed firefighting systems - Foam Systems**

The design requirements of these systems are specified in the standard;

- NFPA 16; Standard for the Installation of Foam-Water Sprinkler and Foam-Water Spray Systems
- EN 13565-2; Fixed firefighting systems - Foam systems - Part 2: Design, construction and maintenance;

The requirements of the foam of these systems are specified in the standard:

- NFPA 11; Standard for Low-, Medium-, and High-Expansion Foam;
- EN 1568-1; Fire extinguishing media - Foam concentrates - Part 1: Specification for medium expansion foam concentrates for surface application to water-immiscible liquids;
- EN1568-2; Fire extinguishing media - Foam concentrates - Part 2: Specification for high expansion foam concentrates for surface application to water-immiscible liquids;
- EN1568-3; Fire extinguishing media - Foam concentrates - Part 3: Specification for low expansion foam concentrates for surface application to water-immiscible liquids
- EN 1568-4; Fire extinguishing media - Foam concentrates - Part 4: Specification for low expansion foam concentrates for surface application to water-immiscible liquids.

The installation requirements of the fire repression systems are specified in the standard;

- NFPA 16; Standard for the Installation of Foam-Water Sprinkler and Foam-Water Spray Systems
- NFPA 20; Standard for the installation of stationary pumps for fire protection;
- EN 13565-2; Fixed firefighting systems - Foam systems - Part 2: Design, construction and maintenance;

The maintenance requirements of t these systems are specified in the standard:  
NFPA 25; Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems.

#### **4.11 Scope H – Fixed firefighting systems - Water Spray Fixed Systems**

The design requirements of these systems are specified in the standard;

- NFPA 15; Standard for Water Spray Fixed Systems for Fire Protection.

The installation requirements of these are specified in the standard:

- NFPA 13; Standard for installation Sprinkler Systems;

The maintenance requirements of these systems are specified in the standard:

- NFPA 25; Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems;

# 5 Testing the performance of the systems by Kiwa

## 5.1 General

This chapter contains the standards with the requirements for testing by Kiwa to determine the performances that the systems have to fulfil.

These tests are necessary if there is no integer information available according to these standards by acceptable approval bodies such as test laboratories fulfilling the requirements ISO17025 “General requirements for the competence of testing and calibration laboratories”. The accreditation of the testing laboratories shall comply with the agreement of mutual acceptance to be acceptable. The accreditation of the testing laboratories and the reports of these laboratories are verified by Kiwa.

Kiwa shall than execute third party witnessing of these tests according to ISO17065 “Conformity assessment - Requirements for bodies certifying products, processes and services” when no accredited testing labs are available.

Certain testing laboratories are acceptable based on criteria determined by the board of experts Fire Safety. These reports shall be controlled and verified by Kiwa.

## 5.2 Scope A – Fixed firefighting systems - Watermist Systems

The requirements for testing of these systems are specified in the standard:

- NFPA 750; Standard on Water Mist Fire Protection Systems;
- CEN/TS 14972; Fixed firefighting systems - Watermist systems - Design and installation.

The requirements for maintenance testing of these systems are specified in the standard NFPA 25; Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems.

## 5.3 Scope B – Fixed firefighting systems - Automatic Sprinkler Systems

The requirements for testing of these systems are specified in the standard:

- NFPA 13; Standard for installation Sprinkler Systems;
- EN 12845; Fixed firefighting systems - Automatic sprinkler systems - Design, installation and maintenance.

The requirements for maintenance testing of these systems are specified in the standard NFPA 25; Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems.

## 5.4 Scope C – Fixed firefighting systems - Gas Extinguishing Systems

The requirements for testing of these systems are specified in the standard EN 15004-1; Fixed firefighting systems - Gas extinguishing systems - Part 1: Design, installation and maintenance.

## 5.5 Scope D – Fixed firefighting systems - Oxygen Reduction Systems

The requirements for testing of these systems are specified in the standard EN 16750; Fixed firefighting systems - Oxygen reduction systems - Design, installation, planning and maintenance.

## 5.6 Scope E – Fixed firefighting systems - Aerosol Systems

The requirements for testing of these systems are specified in the standards;

- ISO 15779; Condensed aerosol fire extinguishing systems - Requirements and test methods for components and system design, installation and maintenance - General requirements;
- EN 15276-1; Fixed firefighting systems - Condensed aerosol extinguishing systems - Part 1: Requirements and test methods for components

The qualification of applications for additional fire classes according to EN2 will be listed in the attachment of the product certificate. Possible fire classes are:

- Class B (large liquid fires);
- Class C (gasses);
- Class F (Cooking oils and fats);

The qualification for additional standards will be listed in the attachment of the product certificate. Possible standards are:

- MSC.1/Circ.1270 based on IMO-regulations;
- UL subject 2775, outline of investigation for fixed condensed aerosol extinguishing system units, November 5, 2008.

## 5.7 Scope F – Fixed firefighting systems - Powder Systems

The requirements for testing of these systems are specified in the standard EN 12416-2; Fixed firefighting systems - Powder systems - Part 2: Design, construction and maintenance.

## 5.8 Scope G – Fixed firefighting systems - Foam Systems

The requirements for testing of these systems are specified in the standard;

- NFPA 16; Standard for the Installation of Foam-Water Sprinkler and Foam-Water Spray Systems
- NFPA 20; Standard for the installation of stationary pumps for fire protection;
- EN 13565-2; Fixed firefighting systems - Foam systems - Part 2: Design, construction and maintenance;

The requirements of the foam of these systems are specified in the standard:

- NFPA 11; Standard for Low-, Medium-, and High-Expansion Foam;
- EN 1568-1; Fire extinguishing media - Foam concentrates - Part 1: Specification for medium expansion foam concentrates for surface application to water-immiscible liquids;
- EN1568-2; Fire extinguishing media - Foam concentrates - Part 2: Specification for high expansion foam concentrates for surface application to water-immiscible liquids;
- EN1568-3; Fire extinguishing media - Foam concentrates - Part 3: Specification for low expansion foam concentrates for surface application to water-immiscible liquids
- EN 1568-4; Fire extinguishing media - Foam concentrates - Part 4: Specification for low expansion foam concentrates for surface application to water-immiscible liquids.



## **5.9 Scope H – Fixed firefighting systems - Water Spray Fixed Systems**

The requirements for testing of these systems are specified in the standard NFPA 15; Standard for Water Spray Fixed Systems for Fire Protection.

# 6 Factory Production Control Fire Protection Components by Kiwa

## 6.1 General

This chapter contains the requirements for factory production control (FPC) by Kiwa of the manufacturers of essential components (products) of fire protection systems to determine the quality of these components that the systems shall comply.

This factory production control of the manufacturer of components (products) is necessary if there is no integer information available according to these standards by acceptable approval bodies according ISO17065 "Conformity assessment - Requirements for bodies certifying products, processes and services".

## 6.2 Assessment (audit / inspection) FPC

The quality system of the supplying manufacturer shall be subjected of an assessment by Kiwa on the basis of the IQC scheme / Quality plan.

The inspection contains at least those aspects mentioned in the Kiwa Regulations for Certification and the requirements of the applicable standards.

The quality system of the supplying manufacturer shall be audited internal by the suppliers at least once a year.

The quality system of the supplying manufacturer shall be audited external by Kiwa at least once a year.

The manufactured components shall be inspected internally by the supplier according to the IQC scheme / Quality plan.

Kiwa shall witness a relevant sample of these inspections at least once per year per scope as is defined in the Kiwa Quality plan of the scheme.

## 6.3 Additional Quality system requirements

The supplier (manufacturer) shall have an operative quality system according EN16763 "Services for fire safety systems and security systems".

## 6.4 Storage and handling

The storage and handling of the fire extinguishing agent shall be dry and protected against the weather and the storage temperature and maximum relative humidity shall be as specified by the supplier.

## 6.5 Receiving inspection fire extinguishing agent

The chemical composition shall be determined during the type tests and be recorded by Kiwa and the supplier. Every delivery of fire extinguishing agent / ingredients shall be accompanied by delivery certificates issued by the supplier to demonstrate that the composition meets the specifications. The delivery certificates shall be based on laboratory analysis of the composition of each production batch of the fire extinguishing agent. The receiving inspection of the fire extinguishing agent shall be carried out for each received delivery. The results shall be determined through laboratory analysis.

## 6.6 Process control of production batches

The performance of completed product shall be tested using random samples. The statistical process control shall be based on a defined sampling system with an accepted level of quality to ISO2859. The minimum sample size shall be inspection level S2 and the accepted quality level AQL 6.5.

Sampling according ISO 2859, inspection level S2, AQL6.5				
Batch Quantity	Inspection Level code S2	Sample size quantity	Max number of failure and accept batch	Max number of failure and reject batch
2-25	A	2	0	1
26-150	B	3	0	1
151-1200	C	5	1	2
1201-35000	D	8	1	2
35001- over	E	13	2	3

- Note 1: in the table above, table A (Sample Size Code Letters and table B (Single Sampling Plans for Normal Inspection) are combined.
- Note 2: "Sample size quantity" samples shall be randomly picked out of the batch

### 6.6.1 Activation and discharge mechanism

The reliable operation of the activation and discharge mechanism and its initiation shall be statistically demonstrated by multiple functional tests.

These tests shall clearly indicate the possibility of failure, completeness of the discharge and discharge quantity. This data shall be included in the statistical process control for the completed products.

# 7 Inspection of fire protection systems by Kiwa

## 7.1 General

The users of buildings and/or sites have the obligation to fulfil the responsibilities about;

- life safety for staff and visitors (occupancies) (fulfilling requirements within ISO19600),
- loss prevention of investments / goods (fulfilling requirements within ISO19600),
- business continuity processes (fulfilling requirements within ISO22301).

*Note:*

*Societal security - Business continuity management systems - Requirements (ISO22301:2012).*

*Compliance management systems – Guidelines (ISO 19600:2014).*

In these situations, an independent expert judgement based on an inspection is required.

This chapter contains the requirements for inspection by Kiwa to determine the status and the conditions that the systems have to fulfil.

The conditions shall minimal cover the requirements about:

- The construction of the building(s) such as strength by fire and fire resistance of building components;
- Asset and facility management of the building(s) and installation(s);
- The emergency organisation setup and readiness.

*NFPA 4 can be used for assessments for integrated assessments.*

*NFPA 4: Standard for integrated fire protection and life safety system testing.*

These inspections of the fire protection systems shall be performed according EN-ISO/IEC 17020 "Conformity assessment - General criteria for the operation of various types of bodies performing inspection".

In this assessment method, the fire protection system shall meet the requirements and conditions of the design standard(s) of the fire protection system and the conditions required in the basic design of the system in conjunction with the required conditions for the construction of the building compartment(s) and the organisation applying the fire protection system.

This method shall create a complete overview of the usage of the fire protection system in its application and if successful shall result in a System Application Inspection Certificate (SAIC).

In this method, the information generated by the supplier of the systems and co-suppliers of the conditions is used.

## 7.2 Steps in the process of the initial inspection for the qualification of the FPS

The first step in the inspection process is the assessment of the basic design of the fire protection system.

The basic design shall at least contain the following information:

- The applicable design standard as is specified in chapter 4 of this scheme;
- The goal of the fire protection system such as loss prevention and / or life safety and / or business continuity;

- The functional requirements like the level of protection the system should provide such as for sprinkler systems OH (ordinary hazard), LH (low hazard) or for gaseous system minimal soak time (time that the protected compartment is filled with an extinguishing agent with the proper density);
- The specific conditions and limitations of the system in its application;
- The action plan for the internal / external rescue organisations after activation of the FPS.

The second step in the inspection process is the assessment of the detailed design of the fire protection system.

The detailed design shall at least contain the following information:

- The supplier of the system and the approvals / certificates for the fire protection system in conjunction with its goal and functions;
- The calculations and design drawings specifying the layout of the system and its functions based on the basic design.

The third step in the inspection process is the pre-assessment of the basics of the system onsite of the fire protection system related to the basic- and detailed design. These inspections can contain several stages of the realisation process by the supplier.

The fourth step in the inspection process is the final-assessment of the delivered fire protection system onsite related to the basic- and detailed design. These inspections can contain several stages of the realisation process by the supplier.

This process is a basic outline of the inspection process and can be different per fire protection system and site.

### **7.3 Steps in the process of the surveillance inspection for the re-qualification of the FPS**

The FPS shall be inspected to verify if it still meets the requirements of the basic- and detail design.

The first step in the inspection process is the assessment if the scope and demarcation have been changed of the fire protection system based on the present use.

The second step in the inspection process is the verification if the servicing / maintenance as described in chapter 4 of this scheme if this enables the working of the fire protection system.

The third step in the inspection process is if the inspection of the conditions enables the functions of the fire protection system.

The fourth step in the inspection process is if the inspection of the condition of the fire protection system meets the requirements of the basic- and detailed design.

This process is a basic outline of the inspection process and can be different per fire protection system and site.

# 8 Marking

## 8.1 General

The systems and products shall be marked with a declaration of conformity according to the certification part of this scheme and applicable standards. The declaration shall contain at least the following information:

- name or logo of the supplier or manufacturer;
- data or code indicating the date of delivery or maintenance;
- type indication;
- certification marking according to this scheme.

Indications and markings shall at least fulfil the requirements in the relevant product standard.

## 8.2 Certification mark

After concluding a Kiwa certification agreement, the certified products shall be indelibly marked with the certification mark as is detailed in this scheme.



### 8.2.1 Product / component marking by the manufacturer

Essential components with a FPC of Kiwa shall be affixed with a marking according to 6.1 of this scheme.

### 8.2.2 Installation marking by the supplier

Installations fulfilling the requirements shall be marked with an installation declaration of conformity according to this certification scheme and applicable standards.

### 8.2.3 Maintenance marking by the supplier

Maintenance of installations fulfilling the requirements shall be marked with a maintenance declaration of conformity according to this certification scheme and applicable standards.

## 8.3 System Application Inspection Certificate by Kiwa

Installations and conditions supporting the functions of the FPS fulfilling the requirements of this scheme shall be marked with a system declaration of conformity according to this certification scheme and the applicable standards.

These conditions are not in control of the supplier of the FPS.

To achieve a system declaration of conformity, the full co-operation of the user of the system and premises and his/her contractors is needed for this inspection. This party should request for this inspection direct or indirect.

This is operated according to chapter 1.5.1 and 7 of this scheme.

# 9 Requirements in respect of the quality system of the supplier / manufacturer

This chapter contains the requirements which have to be met by the supplier's quality system.

## 9.1 Manager of the quality system of the fire repression system / product

Within the supplier's organizational structure, an employee who will be in charge of managing the supplier's quality system must have been appointed.

The manager of the quality system is responsible:

- to have the latest version of the organisation's organogram communicated with Kiwa;
- to manage the internal audit of the quality system at least once a year;
- to manage the internal inspections of the design, installation and maintenance of the fire repression system according to the internal quality control scheme (IQC scheme).

## 9.2 Internal quality control / quality plan

The supplier shall have an internal quality control scheme (IQC scheme) which is applied by him. The standard for this quality plan is the EN16763 "Services for fire safety systems and security systems

The following must be demonstrably recorded in this IQC scheme:

- which aspects are checked by the supplier;
- according to what methods such inspections are carried out;
- how often these inspections are carried out;
- in what way the inspection results are recorded and kept.

This IQC scheme should at least be an equivalent derivative of the model IQC scheme as shown in the Annex.

Note; Requirements for subcontracting are described in paragraph 3.3 of EN16763.

## 9.3 Control of test and measuring equipment

The supplier shall verify the availability of necessary test and measuring equipment for demonstrating product conformity with the requirements in this evaluation guideline.

When required the equipment shall be kept calibrated ( e.g recalibration at interval). The status of actual calibration of each equipment shall be demonstrated by traceability through an unique ID.

The supplier must keep records of the calibration results.

The supplier shall review the validity of measuring data when it is established at calibration that the equipment is not suitable anymore.

## 9.4 Procedures and working instructions

The supplier shall be able to submit the following:

- procedures for:
  - dealing with products showing deviations;
  - corrective actions to be taken if non-conformities are found;
  - dealing with complaints about products and/or services delivered;

- the working instructions and inspection forms used for design, installation and maintenance.

### 9.5 Requirements of staff for fire protection systems

Staff acting in critical stages of the process need to be qualified according the model in chapter 3.4 of EN16763 “Services for fire safety systems and security systems”.

In this scheme following roles are defined:

“A” defined for the manager responsible of the total delivery process of the fire repression system and the stages verification and handover;

“B” defined for the staff responsible of the planning, design and commissioning process of the fire repression system.

“C” defined for the staff responsible of the installation and maintenance process of the fire repression system.

#### 9.5.1 Requirements exams / diplomas fire protection systems

In its quality plan Kiwa shall specify per scope per role what exams or diplomas meet these requirements.

Kiwa shall make use of the requirements per diploma per scope on this site:

[www.certoplan.nl](http://www.certoplan.nl)

#### 9.5.2 Requirements concerning verification staff manufacturer fire protection components

Function	Education	Experience
Production manager	Higher professional qualification in one of the following disciplines: <ul style="list-style-type: none"> <li>• Technical</li> </ul>	1 year
Laboratory manager	Higher professional qualification in one of the following disciplines: <ul style="list-style-type: none"> <li>• Chemistry or comparable</li> </ul>	1 year

The education and experience of relevant personnel shall be verifiably documented.

### 9.6 Planning audit and sample inspections fire protection systems

The supplier of the fire protection system shall arrange that Kiwa can perform its yearly audit and the necessary inspections on site. The supplier shall use the registration tools of Kiwa.



# 10 Summary of tests and inspections by Kiwa

This chapter contains a summary of the following tests and inspections to be carried out in the event of certification:

- **initial investigation:** tests in order to ascertain that all the requirements recorded in the scheme are met;
- **inspection test:** tests carried out after the certificate has been granted in order to ascertain whether the certified products continue to meet the requirements recorded in the scheme;
- **inspections and audits of the quality system of the supplier:** monitoring compliance of the IQC scheme and procedures.

## 10.1 Test, inspection and audit matrix

Description of requirement	Article no. scheme	Tests, inspections and audits within the scope of:	
		Pre-certification	Inspection by Kiwa after granting of certificate a,b)
<b>Process requirements</b>			
Per applicable scope for the fire protection system	4	x	x
<b>Testing performance of the systems</b>			
If needed per applicable scope Installation and application manual (DIOM)	5	x	x
<b>Factory production control components</b>			
If needed per applicable scope Installation and application manual (DIOM = Design, Installation, Operation and Maintenance) Batch testing	6	x	x
<b>Quality system and Certification mark</b>			
Quality system Certification marking	8 9	x	X

a) In case the product or production process changes, it must be determined whether the performance requirements are still met.

b) All product characteristics that can be determined within the visiting time (maximum 1 day) are determined by the inspector or by the supplier in the presence of the inspector. In case this is not possible, an agreement will be made between the certification body and the supplier about how the inspection will take place. The frequency of inspection visits is defined in chapter 6.2 of this scheme.

## 10.2 Inspection of the quality system of the supplier

The quality system of the supplying manufacturer will be checked by Kiwa on the basis of the IQC scheme / Quality plan.

The inspection contains at least those aspects mentioned in the Kiwa Regulations for Certification and the requirements of the applicable standards.

### 10.2.1 Auditing the quality system of the supplier

The quality system of the supplier shall be audited internally by the suppliers at least once a year.

The quality system of the supplier shall be audited externally by Kiwa at least once a year with a minimum audit time of 1 day.

### 10.2.2 Inspecting the output of the process of the supplier

The installations / systems shall be inspected internally by the supplier according to the IQC scheme / Quality plan.

Kiwa shall inspect relevant samples of installations / systems in the maintenance process at least once a year as is defined in the Kiwa Quality plan of the scheme and scope. The basic design of the installation / system can stipulate that an installation / system shall be inspected every year.

Otherwise, a random inspection frequency is applicable according to the matrix in this chapter.

Per sample inspection is no complete overview applicable of the maintenance process.

The inspection plan in control of the Kiwa Quality plan shall stipulated what needs to be inspected per year per supplier and what needs to be inspected per installation / system.

Kiwa shall inspect relevant samples of installations / systems in the delivery process at least once a year as is defined in the Kiwa Quality plan of the scheme and scope. The basic design of the installation / system can stipulate that an installation / system shall be inspected including design by Kiwa.

Otherwise, a random inspection frequency is applicable according to the matrix in this chapter.

Per sample inspection is no complete overview applicable of the installation process. The inspection plan in control of the Kiwa Quality plan shall stipulated what needs to be inspected per year per supplier and what needs to be inspected per installation / system.

#### Matrix frequency samples inspection

	System	Installation stage	Maintenance stage
A	Watermist systems	1:5	1:15
B	Automatic sprinkler systems	1:10	1:25
C	Gas extinguishing systems	1:10	1:25
D	Oxygen reduction systems	1:5	1:15
E	Aerosol systems	1:10	1:25
F	Powder systems	1:2	1:10
G	Foam systems	1:2	1:10

*Note; during a sample inspection, certain activities are to be assessed such as the liquid tightness of a piping system.*

### **10.3 Design modifications components**

Design modifications to the certified product shall always be notified to Kiwa before being introduced in the production process. Kiwa shall assess to what extent the design modifications will require new type tests of the product. The modified product may only be supplied with the Kiwa mark after written approval by Kiwa of the re- designed or new product.

# 11 Agreements on the implementation of certification by Kiwa

## 11.1 General

Beside the requirements included in these evaluation guidelines, the general rules for certification as included in the Kiwa Regulations for Product Certification also apply. These rules are in particular:

- the general rules for conducting the pre-certification tests, in particular:
  - the way suppliers are to be informed about how an application is being handled;
  - how the tests are conducted;
  - the decision to be taken as a result of the pre-certification tests.
- the general rules for conducting inspections and the aspects to be audited,
- the measures to be taken by Kiwa in case of Non-Conformities,
- the measures taken by Kiwa in case of improper use of Certificates, Certification Marks, Pictograms and Logos,
- terms for termination of the certificate,
- the possibility to lodge an appeal against decisions of measures taken by Kiwa.

## 11.2 Certification staff

The staff involved in the certification may be sub-divided into:

- Certification assessor (**CAS**): in charge of carrying out the pre-certification tests and assessing the inspectors' reports;
- Site assessor (**SAS**): in charge of carrying out external inspections at the supplier's site(s);
- Decision maker (**DM**): in charge of taking decisions in connection with the pre-certification tests carried out, continuing the certification in connection with the inspections carried out and taking decisions on the need to take corrective actions.

### 11.2.1 Qualification requirements

The qualification requirements consist of:

- qualification requirements for personnel of a certification body which satisfies the requirements EN ISO / IEC 17065, performing certification activities
- qualification requirements for personnel of a certification body performing certification activities set by the Board of Experts for the subject matter of this evaluation guideline

Education and experience of the concerning certification personnel shall be recorded demonstrably.

Basic requirements	Evaluation criteria
Knowledge of company processes Requirements for conducting professional audits on products, processes, services, installations, design and management systems.	<i>Relevant experience: in the field</i> <b>SAS, CAS</b> : 1 year <b>DM</b> : 5 years inclusive 1 year with respect to certification Relevant technical knowledge and experience on the level of: <b>SAS</b> : High school <b>CAS, DM</b> : Bachelor

Basic requirements	Evaluation criteria
Competence for execution of site assessments. Adequate communication skills (e.g. reports, presentation skills and interviewing technique).	<b>SAS:</b> Kiwa Audit training or similar and 4 site assessments including 1 autonomic under review.
Execution of initial examination	<b>CAS:</b> 3 initial audits under review.
Conducting review	<b>CAS:</b> conducting 3 reviews

Technical competences	Evaluation Criteria
Education	<b>General:</b> Education in one of the following technical areas: <ul style="list-style-type: none"> <li>• Engineering.</li> </ul>
Testing skills	<b>General:</b> <ul style="list-style-type: none"> <li>• 1 week lab / inspection training (general and scheme specific) including measuring techniques and performing tests under supervision ;</li> <li>• Conducting tests (per scheme).</li> </ul>
Experience - specific	<b>CAS</b> <ul style="list-style-type: none"> <li>• 3 complete applications (excluding the initial assessment of the production site) under the direction of the <b>PM</b></li> <li>• 1 complete application self-reliant (to be evaluated by <b>PM</b>)</li> <li>• 3 initial assessments of the production site under the direction of the <b>PM</b></li> <li>• 1 initial assessment of the production site self-reliant (witnessed by <b>PM</b>)</li> </ul> <b>SAS</b> <ul style="list-style-type: none"> <li>• 5 inspection visits together with a qualified <b>SAS</b></li> <li>• 1 inspection visits conducted self-reliant (witnessed by <b>PM</b>)</li> </ul>
Skills in performing witnessing	<b>PM</b> Internal training witness testing

Legend:

- Certification assessor (**CAS**)
- Decision maker (**DM**)
- Product manager (**PM**)
- Site assessor (**SAS**)

### 11.2.2 Qualification

The qualification of the Certification staff shall be demonstrated by means of assessing the education and experience to the above mentioned requirements. In case staff is to be qualified on the basis of deflecting criteria, written records shall be kept.

The authority to qualify staff rests with the:

- **PM:** qualification of **CAS** and **SAS**;
- management of the certification body: qualification of **DM**.

### 11.3 Report initial investigation

The certification body records the results of the initial investigation in a report.

This report shall comply with the following requirements:

- completeness: the report provides a verdict about all requirements included in the evaluation guideline;
- traceability: the findings on which the verdicts have been based shall be recorded and traceable;
- basis for decision: the **DM** shall be able to base his decision on the findings included in the report.

### 11.4 Decision for granting the certificate

The decision for granting the certificate shall be made by a qualified Decision maker which has not been involved in the pre-certification tests. The decision shall be recorded in a traceable manner.

### 11.5 Layout of quality declaration

The product certificate shall be in accordance with the model included in the Annex.

### 11.6 Nature of third party audits

The certification body shall carry out surveillance audits on site at the supplier at regular intervals to check whether the supplier complies with his obligations. The Board of Experts decides on the frequency of audits.

The audit program on site shall cover at least:

- the product requirements;
- the production process;
- the suppliers IQC scheme and the results obtained from inspections carried out by the supplier;
- the correct way of marking certified products;
- compliance with required procedures;
- handling complaints about products delivered.

For suppliers with a private label certificate the frequency of audits amounts to one audit per two years. The audits are conducted at the site of private label holder and focus on the aspects inserted in the IQC scheme and the results of the control performed by the private label holder. The IQC scheme of the private label holder shall refer to at least:

- the correct way of marking certified products;
- compliance with required procedures for receiving and final inspection;
- the storage of products and goods;
- handling complaints.

The results of each audit shall be recorded by Kiwa in a traceable manner in a report.

### 11.7 Non conformities

When the certification requirements are not met, measures are taken by Kiwa in accordance with the sanctions policy as written in the Kiwa Regulation for Certification.

The Sanctions Policy is available through the “News and Publications” page on the Kiwa website.

### 11.8 Report to the Board of Experts

The certification body shall report annually about the performed certification activities. In this report the following aspects are included:

- mutations in number of issued certificates (granted/withdrawn);
- number of executed audits in relation to the required minimum;

- results of the inspections;
- required measures for established Non-Conformities;
- received complaints about certified products.

### **11.9 Interpretation of requirements**

The Board of Experts may record the interpretation of requirements of this certification scheme in one separate interpretation document in annex III of this scheme.

### **11.10 Specific rules set by the Board of Experts**

By the Board of Experts the following specific rules have been defined. These rules shall be followed by the certification body.

# 12 Titles of standards

## 12.1 Public law rules

Not applicable

## 12.2 Standards / normative documents

Number	Title	Version*
EN ISO/IEC 17020	Conformity assessment - General criteria for the operation of various types of bodies performing inspection.	
EN ISO/IEC 17021	Conformity assessment - Requirements for bodies providing audit and certification of management systems.	
EN ISO/IEC 17024	Conformity assessment - General requirements for bodies operating certification of persons.	
EN ISO/IEC 17025	General requirements for the competence of testing and calibration laboratories.	
EN ISO/IEC 17065	Conformity assessment - Requirements for bodies certifying products, processes and services.	
EN 2	Classification of fires.	
EN 1568-1	Fire extinguishing media - Foam concentrates - Part 1: Specification for medium expansion foam concentrates for surface application to water-immiscible liquids.	
EN1568-2	Fire extinguishing media - Foam concentrates - Part 2: Specification for high expansion foam concentrates for surface application to water-immiscible liquids.	
EN1568-3	Fire extinguishing media - Foam concentrates - Part 3: Specification for low expansion foam concentrates for surface application to water-immiscible liquids.	
EN 1568-4	Fire extinguishing media - Foam concentrates - Part 4: Specification for low expansion foam concentrates for surface application to water-immiscible liquids.	
EN 12416-1	Fixed firefighting systems - Powder systems - Part 1: Requirements and test methods for components.	
EN 12416-2	Fixed firefighting systems - Powder systems - Part 2: Design, construction and maintenance.	
EN 12845	Fixed firefighting systems - Automatic sprinkler systems - Design, installation and maintenance.	
EN 13565-2	Fixed firefighting systems - Foam systems - Part 2: Design, construction and maintenance.	
EN15004-1	Fixed firefighting systems - Gas extinguishing systems - Part 1: Design, installation and maintenance (ISO 14520-1:2006, modified).	
CEN/TS 14972	Fixed firefighting systems - Watermist systems - Design and installation.	
EN15276-1	Fixed firefighting systems - Condensed aerosol extinguishing systems - Part 1: Requirements and test methods for components.	
EN15276-2	Fixed firefighting systems - Condensed aerosol extinguishing systems - Part 2: Design, installation and maintenance.	



EN 16750	Fixed firefighting systems - Oxygen reduction systems - Design, installation, planning and maintenance.	
EN 16763	Services for fire safety systems and security systems	2017
ISO 15779	Condensed aerosol fire extinguishing systems - Requirements and test methods for components and system design, installation and maintenance - General requirements.	
NFPA 11	Standard for Low-, Medium-, and High-Expansion Foam.	
NFPA 13	Standard for installation Sprinkler Systems.	
NFPA 16	Standard for the Installation of Foam-Water Sprinkler and Foam-Water Spray Systems.	
NFPA 750	Standard on Water Mist Fire Protection Systems.	
NFPA 2010	Standard for Fixed Aerosol Fire-Extinguishing Systems.	
UL 2775	Outline of Investigation for fixed condensed aerosol extinguishing system units.	
MSC.1/Circ.1270	Revised Guidelines for the approval of fixed aerosol fire extinguishing systems equivalent to fixed gas fire extinguishing systems, as referred to in SOLAS 74, for machinery spaces.	

\*) When no date of issue has been indicated, the latest version of the document is applicable for new systems. Kiwa shall inform the certificate holders about changes in version.

# I Annex - Model certificate (example)



**Product certificate**  
KXXXXXX/0X

Issued

Replaces

Page 1 of 1

**Name product**

STATEMENT BY KIWA  
With this product certificate, issued in accordance with the Kiwa Regulations for Certification, Kiwa declares that legitimate confidence exists that the products supplied by

**Name customer**

as specified in this product certificate and marked with the Kiwa®-mark in the manner as indicated in this product certificate may, on delivery, be relied upon to comply with Kiwa evaluation guideline BRL-xxxx "xxxxxxxxxxxxxxxxxxxxxxxx" **dated [dd-mm-yyyy]** inclusive amendment sheet dated dd-mm-yyyy.

  
 Luc Leroy  
 Kiwa

CERTIFICATE

*Publication of this certificate is allowed.  
Advice: consult [www.kiwa.nl](http://www.kiwa.nl) in order to ensure that this certificate is still valid.*

Kiwa Nederland B.V. Sir Winston Churchilllaan 273 P.O.Box 70 2280 AB RIJSWIJK The Netherlands Tel. +31 88 998 44 00 Fax +31 88 998 44 20 info@kiwa.nl www.kiwa.nl	Company Name customer Address customer  Phone number Fax number www. Email
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Certification process consists of initial and regular assessment of:

- quality system
- product

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## II Annex - Model IQC-scheme (example)

Inspection subjects	Inspection aspects	Inspection method	Inspection frequency	Inspection registration
Raw materials or materials supplied: - recipe sheets  - incoming goods inspection raw materials				
Production process, production equipment, plant: - procedures - working instructions - equipment - release of product				
Finished-products				
Measuring and testing equipment - measuring equipment  - calibration				
Logistics - internal transport - storage - preservation  - packagingII - identification				

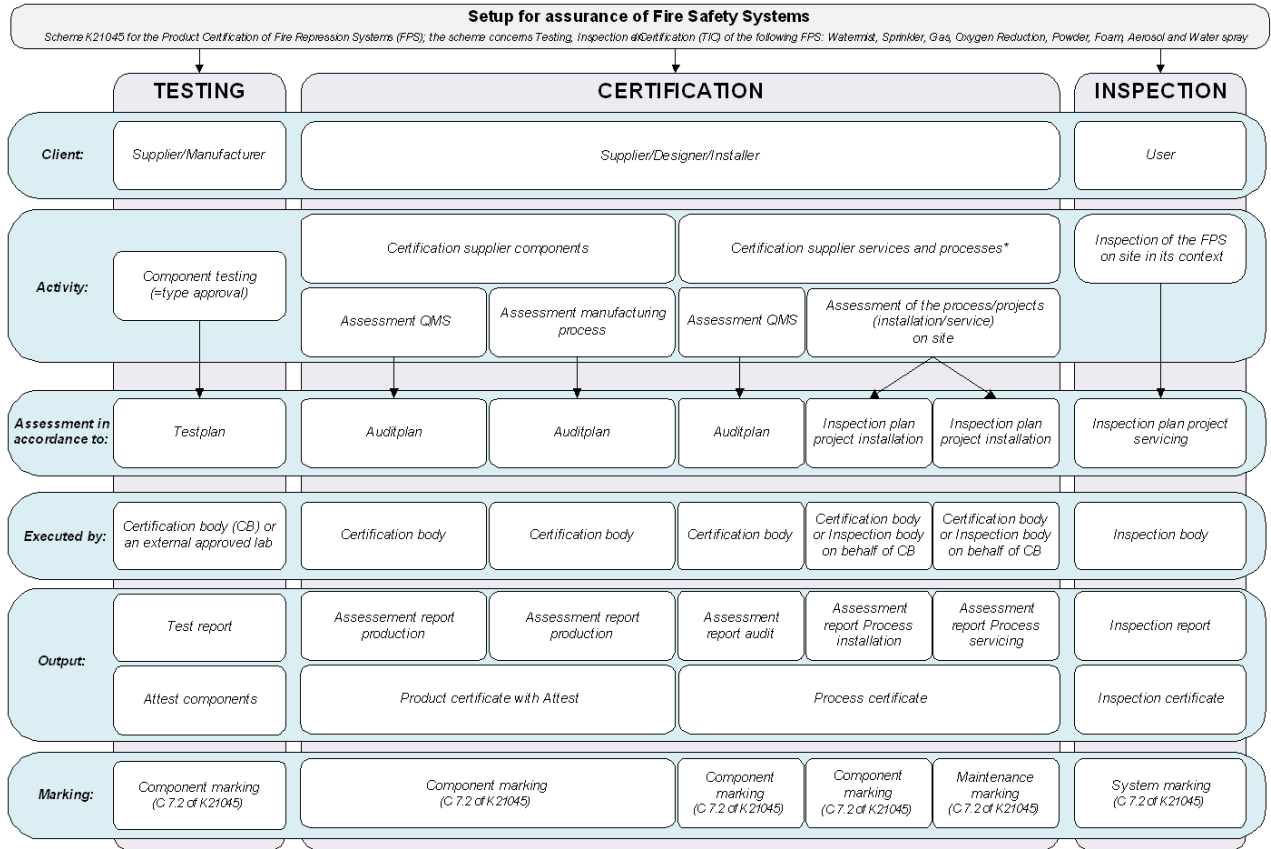
### **III Annex - Interpretation of requirements**

For the Dutch situation Kiwa shall apply the documents published on the site below:  
[www.hetcvv.nl](http://www.hetcvv.nl)

In general situations the FM data sheets can be addressed in specific solutions such as FM5660.

If applicable can preliminary international standard documents be used.

# IV Annex - structure scheme



\* Processes=Assembling of an installation

# V Annex - structure documents scheme

